Base Load Power Hub (BLPH)

ATEX IMPLEMENTATION PLAN

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1 INTRODUCTION

1.1 PROJECT OVERVIEW

Crosswind, a Shell and Eneco joint venture, was awarded the tender to develop the offshore Hollandse Kust Noord (HKN) wind farm, located 18.5km off the coast of Netherlands near the town of Egmond aan Zee. The consortium plans to have HKN operational in 2023 with an installed capacity of 759MW generating at least 3.3TWh per year. This is sufficient renewable power to supply more than 1 million Dutch households with green electricity.

Offshore wind farms produce intermittent electricity and balancing these dips and peaks and integrating this electricity into the national energy system requires new technologies. For this reason, the offshore wind farm will include several new technologies that could be implemented at full-scale in the future. The new technologies being explored include a floating solar park, a short-duration battery storage as well as long-term storage via green hydrogen produced by water electrolysis and subsequently consumed in a fuel cell. The combination of these individual measures, herein referred to as the Base Load Power Hub (BLPH) will ensure a continuous power supply regardless of the wind situation.

1.1.1 Project Location

The Hollandse Kust Noord (HKN) wind farm is located 18.5km off the coast of the Netherlands near the town of Egmond aan Zee.

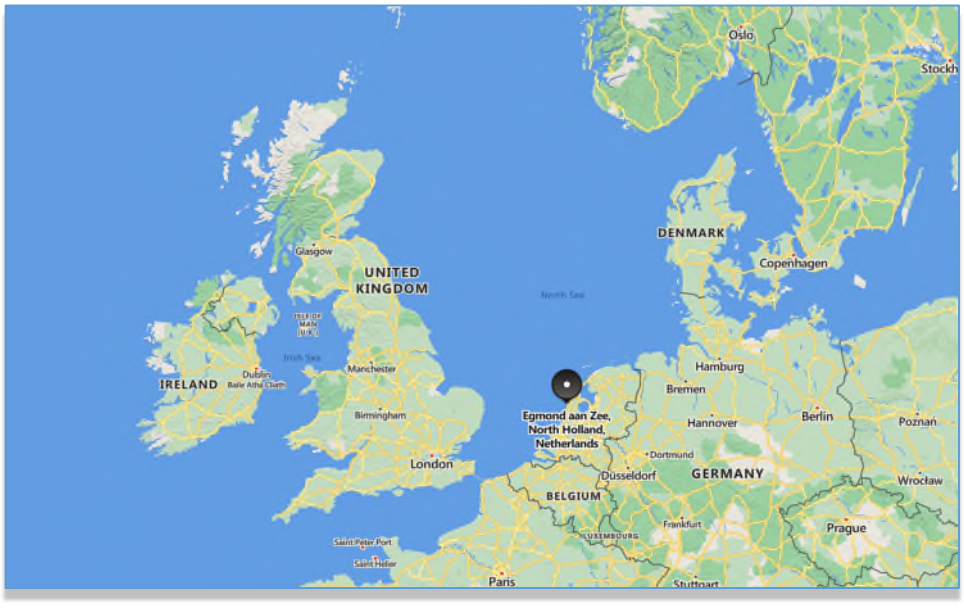


Figure 1 HOLLANDSE KUST NOORD WIND PARK Location Map

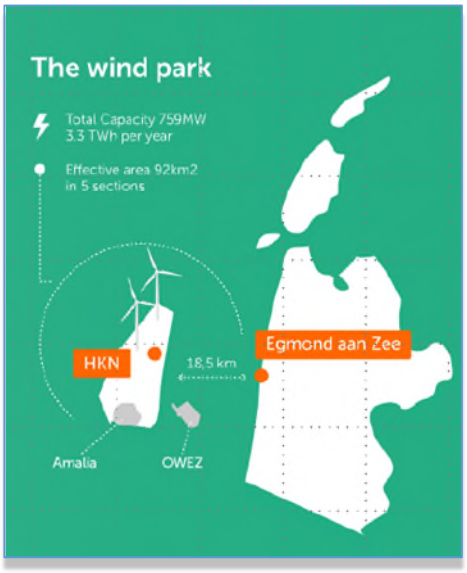


Figure 2 - Wind Park Details

The wind farm will consist of No. 69 x 11.5MW wind turbine generators each to be installed on a dedicated monopile structure. A 70th monopile located on coordinates E 590719.1, N 5841602.3 is reserved for installing the platform accommodating the BLPH. The monopile structure was designed and installed by Van Oord Offshore Wind (VooW) and therefore not part of the BLPH scope.

1.1.2 Project Concept

All components included in the BLPH will be integrated onshore on a topsides and installed in an offshore location within the boundaries of the HKN wind farm. At its simplest, the BLPH will store energy during periods of high electricity generation from renewable sources (a wind turbine generator and the floating solar PV farm) and release it during periods of low generation. In practice. It is expected that the energy stored will supplement generation from renewable sources to ensure that at least 1.0MW of power is exported to the electrical grid regardless of wind/solar availability.

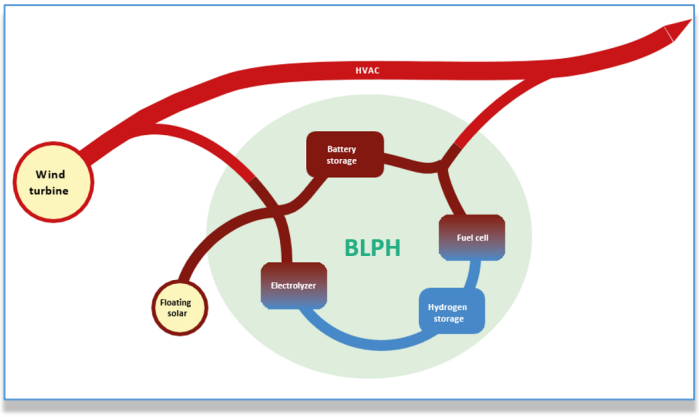


Figure 3 – BLPH Concept

Electricity in the BLPH will be stored in the form of electrons in a battery energy storage system (BESS) as well as converted into green hydrogen via water electrolysis. When the power output from the connecting wind turbine drops to below 1 MWe, the BLPH will return its stored energy to supplement the remaining power output. This will be by discharging the BESS, while stored hydrogen will be converted back into electricity using a fuel cell to extend the discharge duration.

The purpose of the BLPH s to function as a testbed for the integration of energy storage technologies with renewable generation. It is expected that equipment installed on the BLPH will operate as Normally Unmanned Installation for at least two (2) years with no or minimal maintenance and it will have its own independent control room with the ability to communicate with Crosswind's control room.

2 REFERENCE DOCUMENTS

2.1 EU DIRECTIVE AND HARMONISED STANDARDS

Doc. No.	Description
DIRECTIVE ATEX 2014/34/EU	Equipment for potentially explosive atmospheres
IEC 60079-14	Electrical installations design, selection and erection
IEC 60079-17	Electrical installations inspection and maintenance
EN 1127-1:2019	Explosive atmospheres - Explosion prevention and protection - Part 1: Basic concepts and methodology
EN IEC 60079-0:2018	Explosive atmospheres - Part 0: Equipment - General requirements
EN 60079-1:2014	Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d"
EN 60079-2:2014	Explosive atmospheres - Part 2: Equipment protection by pressurized enclosure "p"
EN 60079-5:2015	Explosive atmospheres - Part 5: Equipment protection by powder filling "q"
EN 60079-6:2015	Explosive atmospheres - Part 6: Equipment protection by liquid immersion "o"
EN 60079-7:2015	Explosive atmospheres - Part 7: Equipment protection by increased safety "e"
EN 60079-10-1:2015	Classification of areas - Explosive gas atmospheres
EN 60079-11:2012	Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
EN 60079-13:2017	Equipment protection by pressurized room "p" and artificially ventilated room "v"
EN 60079-15:2010	Explosive atmospheres - Part 15: Equipment protection by type of protection "n"
EN 60079-18:2015	Explosive atmospheres - Part 18: Equipment protection by encapsulation "m"
EN 60079-20-1:2010	Explosive atmospheres - Part 20-1: Material characteristics for gas and vapour classification - Test methods and data
EN 60079-25:2010	Intrinsically safe electrical systems
EN 60079-26:2015	Equipment with Equipment Protection Level (EPL) Ga
EN 60079-28:2015	Protection of equipment and transmission systems using optical radiation
EN 60079-29-1:2016	Gas detectors - Performance requirements of detectors for flammable gases
EN 60079-29-4:2010	Performance requirements of open path detectors for flammable gases
EN 60079-30-1:2017	Electrical resistance trace heating - General and testing requirements
EN 61892	Mobile and fixed offshore units - Electrical installations - ALL PARTS

Table 1 - Reference Documents

2.2 DEFINITIONS AND ABBREVIATIONS

DEFINITIONS:

a) **Equipment:**
machines, apparatus, fixed or mobile devices, control components and instrumentation thereof and detection or prevention systems which, separately or jointly, are intended for the generation, transfer, storage, measurement, control and conversion of energy and/or the processing of material and which are capable of causing an explosion through their own potential sources of ignition.

b) **Protective systems:**
devices other than components of equipment which are intended to halt incipient explosions immediately and/or to limit the effective range of an explosion and which are separately made available on the market for use as autonomous systems.

c) **Components:**
any item essential to the safe functioning of equipment and protective systems but with no autonomous function.

d) **Explosive atmosphere:**
a mixture with air, under atmospheric conditions, of flammable substances in the form of gases, vapours, mists or dusts in which, after ignition has occurred, combustion spreads to the entire unburned mixture.

e) **Potentially explosive atmosphere:**
an atmosphere which could become explosive due to local and operational conditions.

f) **hazardous area:**
area in which an explosive atmosphere is present, or may be expected to be present, in quantities such as to require special precautions for the construction, installation and use of equipment.

g) **non-hazardous area:**
area in which an explosive atmosphere is not expected to be present in quantities such as to require special precautions for the construction, installation and use of equipment.

ABBREVIATIONS

ATEX	ATMOSPHERES EXPLOSIBLE
BESS	BATTERY ENERGY STORAGE SYSTEM
BLPH	BASE LOAD POWER HUB
CONTRACTOR (CTR):	ROSETTI MARINO S.p.A.
CPI	COMPANY PROVIDED ITEM
DoC	DECALRATION OF CONFORMITY
E&I	ELECRICAL AND INSTRUMENTAL
EEHA	ELECTRICAL EQUIPMENT FOR HAZARDOUS AREA
EN	EUROPEAN NORM
EPL	EQUIPMENT PROTECTION LEVEL
EX	EXPLOSION PROTECTION
HKN	HOLLANDSE KUST NOORD
IEC	INTERNATION ELECTOTECHNICAL COMMISSION
ITR	INSPECTION AND TEST REPORT
JB	JUNCTION BOX
MC	MECHANICAL COMPLETION
MCM	MECHANICAL COMPLETION MANAGER
MRB	MANUFACTURER RECORD BOOK
NOBO	NOTIFIED BODY
PQM	PROJECT QUALITY MANAGER
PROJECT:	HOLLANDSE KUST NOORD WIND PARK Project
PSL	PROJECT SPECIALIST LEADER
PV	PHOTOVOLTAIC
QC	QUALITY CONTROL
RFQ	REQUEST FOR QUOTATION
RM	ROSETTI MARINO
SQL	SUPPLIER QUALITY LEADER
TBE	TECHNICAL BID EVALUATION
TRP	TECHNICAL REQUISITION PACKAGE
VooW	VAN OOR OFFSHORE WIND

Table 2 - Definitions and Abbreviations

3 PURPOSE AND SCOPE

This document defines the arrangements made by the CONTRACTOR to manage the engineering, procurement, construction, and Inspection activities required to demonstrate compliance with the ATEX Product Directive and recognized norms and standards as defined in Section 2.

Specifically, the arrangements defined in this plan shall ensure compliance with the regulatory requirements related to equipment, protective systems and installations located in classified area for explosive gas atmospheres.

The area classification shall be according to IEC 60079-10· 1: Classification of areas - Explosive gas atmospheres.

The CONTRACTOR will provide plan view drawings showing the hazardous area zones and equipment locations and elevation views of the Installation to illustrate the hazardous area zones.

4 RESPONSIBLITIES

Electrical and Instrumentation Quality Control (E&I QC):

- Ensure all documentation, inspection, and test records are available.
- Maintain the overall competency ATEX register, including both electrical and non-electrical equipment.
- Coordinate QC inspectors following the instructions of the Project Quality Manager (PQM), in cooperation with the Mechanical Completion Manager (MCM).
- Train and form ATEX Quality Control inspectors and supervisors as per Training Course EEHA "Electrical Equipment Hazardous Area installation and verification" or equivalent, covering the requirements of IEC 60079-14 and 17, including protection methods.

Project Quality Manager (PQM):

- Provide instructions to QC E&I for coordinating QC inspectors.
- Collaborate with the Mechanical Completion Manager (MCM) to ensure quality control activities are effectively managed.

Mechanical Completion Manager (MCM):

- Collaborate with the Project Quality Manager (PQM) to manage and support QC inspectors.
- Ensure mechanical completion aligns with quality standards and requirements.

Supply Quality Lead:

- Arrange ATEX inspections and reviews at Vendor's sites.
- Coordinate with and receive support from the E&I QC team for these inspections and reviews.

Discipline Engineers:

- Familiarize themselves with the requirements of IEC 60079-14 and 17.
- Understand the standards and specifications listed in Section 2 of the relevant document.
- Mechanical Discipline engineers should also be familiar with EN 80079-36/37, Area Classification, and Ignition Source Control, among other relevant standards.

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5 GENERAL

The project will employ a comprehensive strategy that delineates vendor—and contractor-procured equipment responsibilities to ensure the seamless integration of packaged equipment and minimize the impact on the commissioning schedule.

For the purposes of this document, equipment is grouped as follows:

1. **Vendor-Procured and Installed Equipment:** This category includes all equipment provided and installed by the vendors of packaged equipment. Company Provided Items (CPI) are excluded from this category.
2. **Contractor-Procured and Installed Equipment:** This category encompasses all equipment that the CONTRACTOR procures and installs. Company-provided items (CPI) are not included like in the group one.

Vendor-Procured and Installed Equipment: Vendors responsible for packaged equipment must ensure that every piece of electrical and non-electrical equipment within the scope of the ATEX Product Directive is correctly identified and certified. The installation of this equipment must adhere to the manufacturer's recommendations. Upon installation, vendors are required to issue the relevant ATEX Certification. Additionally, vendors must complete and utilize the ATEX Register Form provided by the CONTRACTOR, which has been agreed upon with the COMPANY. This form ensures all ATEX equipment is documented properly, facilitating compliance tracking and verification.

Contractor-Procured and Installed Equipment: The CONTRACTOR is responsible for both the installation and inspection of ATEX equipment. After installing the equipment, the CONTRACTOR must inspect it to demonstrate compliance with applicable standards and regulations. The results of these inspections, along with other relevant details, must be recorded in the ATEX Register Form. This process ensures that all contractor-procured equipment is properly documented and compliant with ATEX requirements.

ATEX Inspections: All ATEX inspections will be conducted according to the guidelines set out in document number 123A90-PML-CO-PL-03002, known as the "Mechanical Completion Execution Plan." This document provides detailed instructions on how inspections should be carried out to ensure thoroughness and adherence to regulatory standards.

5.1 ENGINEERING

In the design and engineering phase, the objective is to identify the sources of ignition within the areas requiring protection of ignition sources, identify the "protective systems", perform the hazardous area classification, categorize the ignition sources and select equipment protective systems accordingly.

All electrical and non-electrical tagged equipment installed in ATEX classified areas for explosive atmospheres shall be identified on the ATEX register.

Hazardous Area Classification has been performed by the Technical Safety discipline according to codes and rules.

5.1.1 IMPLENTATION OF ATEX REQUIREMENTS IN DESIGN ACTIVITIES

The Project design team implements ATEX requirements into engineering design to ensure compliance with regulatory frameworks, provide safety assurance in potentially explosive atmospheres, and establish the requirements for vendors. Designers have prior knowledge of the general principles of explosion protection concepts and of the relevant standards. The following steps detail the design activities performed by the Rosetti design team:

1. Definition of Equipment Requirements
   The team ensures all equipment within hazardous areas is selected and specified to meet ATEX compliance.
   - Ignition Source Control: Identify potential ignition sources and propose mitigation measures such as intrinsically safe systems or explosion-proof enclosures.
   - ATEX Equipment Selection: Specify Equipment Protection Levels (EPLs) based on zone requirements and ensure compliance with ATEX directive 2014/34/EU and IEC standards.
   - Protection Methods: Define protection methods appropriate for the environment, including Intrinsic Safety (Ex i), Explosion-Proof (Ex d), and Increased Safety (Ex e).
2. Documentation of ATEX Equipment
   All ATEX equipment is tracked and documented to maintain compliance and facilitate verification.
   - Populate an ATEX Register with equipment details, including category/group, zone classification, and certification references.
   - Share the ATEX Register template with vendors to standardize data reporting and streamline integration.
3. Handover to Procurement
   Ensure seamless transition from engineering to procurement by providing detailed specifications and documentation.
   - Develop Technical Requisition Packages (TRPs) with hazardous area classifications, ATEX standards, and inspection/testing expectations.
   - Engage with the Supply Chain team to communicate technical requirements and address queries.
4. Handover to Procurement
   Ensure seamless transition from engineering to procurement by providing detailed specifications and documentation.
   - Develop Technical Requisition Packages (TRPs) with hazardous area classifications, ATEX standards, and inspection/testing expectations.
   - Engage with the Supply Chain team to communicate technical requirements and address queries.

5. Iterative Validation
   Validate design deliverables through iterative reviews and incorporate updates based on new data or operational changes.

5.2 PROCUREMENT

The initial stage in the procurement process involves verifying that the suppliers listed on the Approved Vendors List (AVL) have a proven track record of supplying equipment and materials in compliance with the ATEX Product Directive. This verification is the responsibility of the Supply Chain department, ensuring that all potential suppliers meet the necessary safety and regulatory standards before any procurement activities commence.

5.2.1 PACKAGES

Following QC activities specifically related to ATEX compliance shall be performed only for packages installed in classified areas for explosive atmospheres:
Vendors shall inspect the correct installation of ATEX equipment. These inspections shall be part of the package's Inspection Test Plan (ITP); the extent shall be 100%.
-VENDOR shall provide an ATEX register, ATEX certificates, ATEX inspection records, and competencies records. These documents shall be part of the Vendor's MRB
The CONTRACTOR shall verify that all necessary ATEX documentation and certification are complete and correct prior to releasing the equipment from the supplier's works. This will be coordinated by the CONTRACTOR Expediter and SQL.
The CONTRACTOR shall verify that the item nameplates are correctly installed and comply with the certification requirements. Verification activities be coordinated by the SQL to release the Equipment from the supplier's works.

VENDOR documentation will be subject to review by the PSL.
In case the vendor partially performs a detailed inspection, e.g., for intrinsically safe items or interconnecting JBs, RM will perform the detailed inspection and relevant ITR, which will be uploaded to the MC database.
Detailed inspection of ATEX components will be performed at Yard by CONTRACTOR as explained in document n. 123A90-PML-CO-PL-03002 – "Mechanical Completion Execution Plan"

5.2.2 BULKS ITEMS

Following QC activities specifically related to ATEX compliance shall be performed:

- VENDOR shall provide an ATEX register complete with ATEX certificates
- CONTRACTOR shall verify that all necessary ATEX documentation and certification is complete and correct prior to release of the equipment from the supplier's works.
  This will be coordinated by the SQL.
- The CONTRACTOR shall verify that item nameplates are correctly installed and compliant with the certification requirements. The SQL shall coordinate verification activities prior to releasing the Equipment from the supplier's works.

VENDOR documentation will be subject to review by the PSL and SQL, before they are released from Warehouse for installation.

5.2.3 YARD INSTALLATION

Inspection of packages, equipment and bulk items on the topside at the yard, shall be performed by competent personnel.
The initial installation inspections will be carried out exclusively based on the areas identified as explosive zones. All other equipment identified as "ATEX" components but installed in a safe area will be considered simple equipment therefore ITR CJX01 will not be applicable. (It is mandatory to follow the correct installation instructions issued by the supplier).

Please refer to "Annex A" relevant to ATEX Register document template which includes the information about ATEX equipment description, model, category/group, EU/EC certificate reference, installed zone/area, temperature class and service description. The whole ATEX equipment information shall be reported in approved ATEX Register overall document.
During the Mechanical Completion phase, competent inspectors shall assess the correctness of ATEX equipment installation. Personnel involved in the construction, supervision, or testing related to hazardous area equipment shall be competent and have relevant training that fulfils all requirements outlined in IEC 60079-14 and IEC 61892-7. Supervisors shall be regarded as responsible personnel, as per IEC 60079-14 and IEC 60079-17.

As per above, each ATEX inspection will be documented by means of dedicated Inspection and Test Reports (ITR); such ITRs are based on IEC 60079 inspection requirements, and they'll be submitted for Company review before starting Mechanical Completion activities.

If, after the ATEX detailed inspection is completed, the instrument doesn't work or is broken, the Commissioning Team will advise the QC team, and after solving the problem, the ATEX Inspection will be repeated.

During the Commissioning stage it may occurs that some ATEX equipment which were previously ATEX inspected and successful passed during the Mechanical Complition stage, need to be open in order to perform relevant commissioning activities.
The Commissioning team shall verify if these ATEX equipment have been affected to some electrical or mechanical changes.
In case no changes were detected in ATEX equipment commissioned, it shall not necessary to repeat the Atex inspection activity. In order to assure the ATEX competency the Commissioning team personnel shall be certified as per EEHA training course requires.

6 DOCUMENT AND RECORDS

Where applicable, VENDOR shall provide an EX register at the earliest stage of the supply as a stand-alone project document for CONTRACTOR and COMPANY review; such document shall include ATEX certificates \ DoCs for all Ex equipment, including non-electrical (DoC).

CONTRACTOR, performing installation for packages and bulk items at Yard shall:

- Review Vendor's documentation and records
- Prepare and maintain an overall EX register, including all relevant EX items installed ATEX classified are for explosive atmospheres.
- Set up and maintain a Mechanical Completion database, which includes records of all EX inspections on dedicated Inspection and Test Reports for the following:
- Bulk items installed at yard by CONTRACTOR
- Packages installed and connected at yard by CONTRACTOR
- Prepare a Mechanical Completion dossier, with dedicated section for ATEX compliance records

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7 PERSONNEL ATEX COMPETENCY

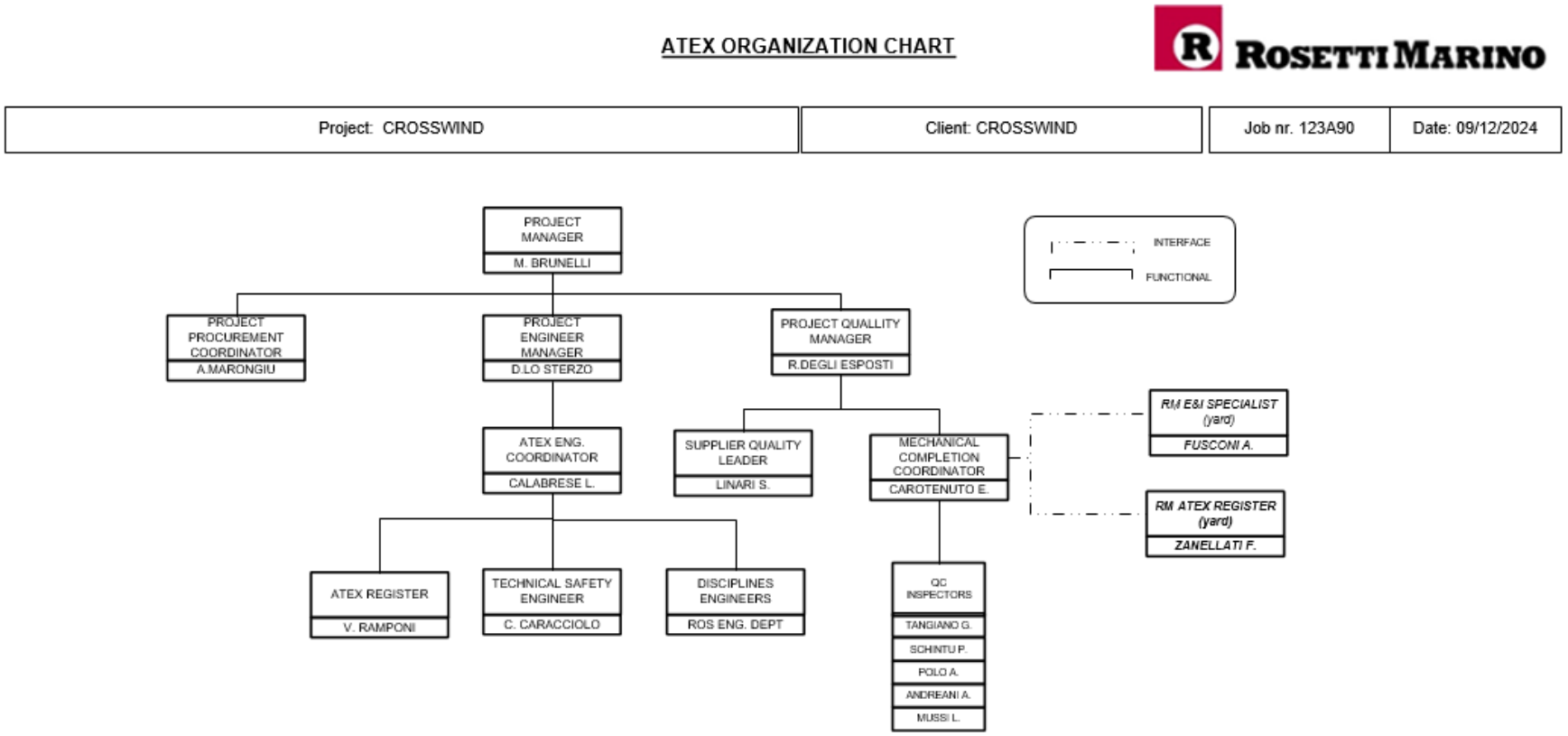
ATEX inspectors shall be experienced personnel and possess additional continued training and knowledge about relevant standards in explosion protection.
All ATEX inspectors involved in project ATEX inspection activities shall attend and successful pass the qualification course EEHA held by a qualified Notified Body.
The EEHA qualification course define and provide assurance of the persons competency in accordance to IEC 60079-14 and IEC 60079-17.
It covers the principles of hazardous area installation, maintenance, inspections, and breakdowns of explosion-protection equipment.

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8 ANNEX A – ATEX REGISTER TEMPLATE

No.	Revision	Tag Number	Description	Location	Manufacturer	Model Type Catalogue Number	Serial Number	ATEX Certification Marking	Reference Document	ATEX Certificate Number	Installation Zone	Notes / Comments	P.O.	Vendor	Skid / Package	Barrier Calculation Ref.	Non-Electrical Equipment	Special Conditions of safe use Applicable

9 ANNEX B – ATEX ORGANIZATION CHART



Organizational Structure

As illustrated in the above organization chart, the ATEX structure establishes clear accountability and coordination among all functions involved in ATEX management.

Role	Certifications (ATEX Related)	ATEX-Related Tasks	Applicable Standards
Project Manager (PM)	Awareness training on ATEX directives.	- Ensure ATEX compliance is integrated across all project phases.	Directive 2014/34/EU EN IEC 60079-14, EN IEC 60079-17
		- Oversee coordination between engineering, procurement, and quality teams for ATEX-related activities.	
Project Engineering Manager (PEM)	Advanced knowledge of IEC 60079-10-1 and IEC 60079-14.	- Supervise engineering deliverables related to hazardous area classification and ATEX equipment.	IEC 60079-10-1, IEC 60079-14
		- Support technical decision-making for ATEX compliance.	
ATEX Engineering Coordinator	Advanced training in IEC 60079 standards (10-1, 14, and 17).	- Act as the focal point for ATEX-related compliance in engineering, procurement, and construction phases.	IEC 60079-10-1 IEC 60079-14 IEC 60079-17
		- Maintain and update the ATEX Register in collaboration with the ATEX Register Responsible.	
Technical Safety Engineer	Training in IEC 60079-10-1.	- Perform hazardous area classification to define zones (e.g., Zone 0, 1, 2).	IEC 60079-10-1
		- Provide recommendations for explosion risk mitigation.	
Disciplines Engineers (E&I, Mechanical)	Training in IEC 60079-14.	- Specify ATEX-compliant equipment for hazardous areas.	IEC 60079-14
		- Define and validate methods of protection (e.g., Ex d, Ex i, Ex e).	
Project Quality Manager (PQM)	Awareness training on ATEX directives (2014/34/EU).	- Supervise quality processes to ensure compliance with ATEX requirements.	Directive 2014/34/EU, ISO 9001
		- Oversee Supply Quality Leader and ensure ATEX requirements are verified in procurement and inspection.	

Role	Certifications (ATEX Related)	ATEX-Related Tasks	Applicable Standards
Supply Quality Leader	Training in IEC 60079-14.	- Verify supplier compliance with ATEX standards through document reviews and audits.	IEC 60079-14, ISO 9001
		- Coordinate inspections of vendor equipment and review Certificates of Conformity.	
QC Inspectors	Training in IEC 60079-17 (inspection and maintenance).	- Conduct field inspections to verify installation compliance with ATEX standards.	IEC 60079-17
Mechanical Completion Coordinator	Familiarity with IEC 60079-14 and IEC 60079-17.	- Verify ATEX compliance during mechanical completion.	IEC 60079-14, IEC 60079-17
		- Coordinate with QC Inspectors to ensure readiness for commissioning.	
Procurement Coordinator	Awareness training on ATEX directives.	- Ensure ATEX compliance is embedded in procurement packages and contracts.	Directive 2014/34/EU
		- Supervise buyers to verify technical requisitions include ATEX specifications.	
ATEX Register Responsible	Awareness of ATEX directives and familiarity with IEC 60079-14.	- Prepare the project ATEX register	Directive 2014/34/EU, IEC 60079-14
		- Ensure traceability of all ATEX-relateddocumentation, including certificates and inspection reports.	
E&I Specialist (yard)	Advanced training in IEC 60079-14.	- Provide field support to ensure electrical installations comply with ATEX requirements.	IEC 60079-14
		- Collaborate with the Mechanical Completion Coordinator to address ATEX-related issues during commissioning.	
RM ATEX Register (yard)	Familiarity with ATEX documentation requirements and IEC 60079-14.	- Update the ATEX Register with real-time data from the field, including inspection results.	Directive 2014/34/EU, IEC 60079-14
		- Ensure accurate recording of equipment certifications and traceability.	

10 ANNEX C – ATEX TRAINING PERSONNEL LIST

NAME	SURNAME	ROLE	DATE
Eleonora	Carotenuto	Mechanical Completion Coordinator	14/10/2024
Giovanni	Tangianu	E&I & ATEX QC Inspector	14/10/2024
Paolo	Schintu	E&I & ATEX QC Inspector	14/10/2024
Carmelo	Bongiovanni	Electrical technicians	04/09/2024
Saverio	Biundo	Electrical technicians	04/09/2024
Alessandro	Pepe	Electrical technicians	04/09/2024
Kalil	Mathcouthi	Electrical technicians	04/09/2024
Carmelo	Riela	Electrical technicians	04/09/2024
Kleant	Kaciqi	Electrical technicians	04/09/2024
Luigi	Cervellara	Electrical technicians	20/10/2024
Pietro	Perna	Electrical technicians	20/10/2024
Antonio	D'Aiò	Electrical technicians	20/10/2024
Adil	Hassouna	Electrical technicians	20/10/2024
Abdellah	Qallidi	Electrical technicians	20/10/2024
Ammara	Moubarak	Electrical technicians	20/10/2024
Gianvito	Carulli	Electrical technicians	20/10/2024
Domenico	Di Corato	Electrical technicians	20/10/2024
Vincenzo	Mallamaci	Electrical technicians	20/10/2024
Adrian	Misca	Electrical technicians	14/11/2024
Lucian Iulian	Lenghen	Electrical technicians	14/11/2024

NAME	SURNAME	ROLE	DATE
Cristian	Zaharia	Electrical technicians	14/11/2024
Daniel	Pana	Electrical technicians	14/11/2024
Rocco	Sciandrello	Electrical technicians	14/11/2024
Stefan	Teodorescu	Electrical technicians	14/11/2024
Ilie	Paraschiv	Electrical technicians	14/11/2024
Corneliu	Macarie	Electrical technicians	14/11/2024
Daniel	Ciocan	Electrical technicians	14/11/2024
Dani	Batruscu	Electrical technicians	14/11/2024
Marcel	Moraru	Electrical technicians	14/11/2024
Mauro	Ferretti	Electrical technicians	27/11/2024
Marin	Mihai	Electrical technicians	27/11/2024
Sallah-Eddin	Zaghrat	Electrical technicians	27/11/2024

The above list is to be considered in continuous evolving and is a "live" part of the document.

11 ATTACHMENT 1: ITR CJX01 – ATEX DETAILED INSPECTION

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ROSETTI MARINO PROVERLIS CROSSWIND

ITEM	Tag	:		Dwg			
	S/Sys	:		Module			
TASK	code		Location		User		
FORM	Process MC	Activity CCK	Discipline ATEX	Form CJX01	Hazardous Area Equipment Detailed Inspection		

Schedule Ref. #			**Area Code**				
Area Class Drawing			**Serial No.**				
Manufacturer			**Model**				
Cert No.			**Equipment Ambient Temp.**				
Area Classification		**Zone**	**Gas group**		**Temp class**		
Equipment Protection Type		**EPL**	**Gas group**		**Temp class**	**IP Rating**	

Detailed Note:

1) Inspection shall only be performed by competent personnel

2) All fields are to be completed. Any non-applicable field shall state "NA". Comments are required for 'Failure' column ONLY.

3) An Inspection Sheet should be completed for EACH individual item of Equipment.

	General Equipment	Detailed	OK/NA/PL	Comments
1	Equipment is appropriate to the EPL / Zone requirements of the area	X		
2	Equipment group is correct	X		
3	Equipment temperature class is correct	X		
4	Degree of IP protection of equipment is appropriate for the level of protection	X		
5	Equipment circuit identification is correct	X		
6	Equipment circuit identification is available	X		
7	Enclosure glass parts and glass-to-metal sealing gaskets and / or compounds are satisfactory	X		
8	There is no damage or unauthorized modifications	X		
9	There is no evidence of unauthorized modifications	X		
10	Bolts, cable entry devices (direct and indirect) & blanking elements are of the correct type, are complete & tight			
	Physical check	X		
11	Threaded covers on enclosures are of the correct type, are tight and secured			
	Physical check	X		
12	Joint surfaces are clean and undamaged and gaskets, if any, are satisfactory and positioned correctly	X		
13	Condition of enclosure gaskets is satisfactory	X		
14	There is no evidence or ingress of water or dust in the enclosure in accordance with the IP rating	X		
15	Electrical connections are tight	X		
16	Bridging links do not reduce creepage / clearance and are allowed	X		
17	Unused terminals are tightened	X		
18	Encapsulated components are undamaged	X		
19	Flameproof components are undamaged	X		
20	Fluorescent lamps are not indicating EOL effects (only for Ex "e" – Ex "n" – Ex "t")	X		
21	HID lamps are not indicating EOL effects	X		
22	Lamp type, rating, pin configuration and position are correct	X		
23	Breathing and drainage devices are satisfactory	X		
24	Type of cable is appropriate	X		
25	There is no obvious damage to the cables	X		
26	Cable glands are the correct type and installed correctly	X		
27	Sealing of trunking, ducts, pipes and or conduits is satisfactory	X		
28	Stopping boxes and cable boxes are corrected filled	X		

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REFER TO FINAL SHEET FOR ACCEPTANCE

ROSETTI MARINO CROSSWIND

ITEM Tag : Dwg
S/Sys : Module

TASK code Location User
FORM Process MC Activity CCK Discipline ATEX Form CJX01 Hazardous Area Equipment Detailed Inspection

29	Integrity of conduit system and interface with mixed system maintained	x		
30	Earthing connections, including any supplementary earthing bonding connections are satisfactory (for example connections are tight and conductors are of sufficient cross-section			
	Physical check	x		
31	Automated electric protective devices operate within permitted limits	x		
32	Special conditions (if applicable) have been complied with.	x		
33	All cable cores are uniquely labeled	x		
34	Cable cores not in use are correctly terminated	x		
35	Equipment is adequately protected against corrosion, weather, vibration and other adverse factors	x		
36	No undue accumulation of dust and dirt	x		
37	All equipment housings are clean and dry	x		
38	All moving parts are free and have no mechanical damage	x		
	Applicable for Installation of Heating Systems			
39	Temperature sensors function according to manufacturer's documents (only applicable for Ex-d e Ex-e)	x		
40	Safety cut off devices function according to manufacturer's documents (only applicable for Ex-d e Ex-e)	x		
41	The setting of the safety cut off is sealed (only applicable for Ex-d e Ex-e)	x		
42	Reset of a heating system safety cut off possible with tool only(only applicable for Ex-d e Ex-e)	x		
43	Auto-reset is not possible (only applicable for Ex-d e Ex-e)	x		
44	Reset of a safety cut off under fault conditions is prevented (only applicable for Ex-d e Ex-e)	x		
45	Safety cut off independent from control system (only applicable for Ex-d e Ex-e)	x		
46	Level switch is installed and correctly set, if required (only applicable for Ex-d e Ex-e)	x		
47	Flow switch is installed and correctly set, if required (only applicable for Ex-d e Ex-e)	x		
	Extra Ex d checks			
48	Obstructions adjacent to flame proof flanged joints are in accordance with IEC 60079-14	x		
49	Ex d conduits seals are fitted to all conduits and satisfactorily sealed	x		
50	Cable glands are of the correct type and installed correctly	x		
51	Adaptors, reducers, stop ends, etc. are all certified Ex d	x		
52	Flame path are clean and undamaged	x		
53	Flange gap dimensions are within tolerances	x		
54	Motor fans have sufficient clearance to the enclosure and/or covers, cooling systems are undamaged, motor foundations have no indentations or cracks	x		
55	The ventilation airflow is not impeded	x		
56	Insulation resistance (IR) of the motor windings is satisfactory	x		
57	Fault loop impedance (TN systems) or earthing resistance (IT systems) is satisfactory	x		
58	Variable voltage/frequency installation complies with documentation	x		
	Extra Ex e checks			
59	All Equipment is Ex e certified (including components within enclosure)	x		
60	Power conductors are not bunched together causing possible hot spots	x		
61	Motor fans have sufficient clearance to the enclosure and/or covers, cooling systems are undamaged, motor foundations have no indentations or cracks	x		
62	Insulation resistance (IR) of the motor windings is satisfactory	x		
63	Fault loop impedance (TN systems) or earthing resistance (IT systems) is satisfactory	x		
64	The ventilation airflow is not impeded	x		
65	Motor protection devices operate within the permitted tE or tA time limits.	x		
66	Variable voltage/frequency installation complies with documentation	x		

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REFER TO FINAL SHEET FOR ACCEPTANCE

ROSETTI MARINO PROVERLIS CROSSWIND

ITEM	Tag	:		Dwg			
	S/Sys	:		Module			
TASK	code		Location		User		
FORM	Process MC	Activity CCK	Discipline ATEX	Form CJX01	Hazardous Area Equipment Detailed Inspection		

Extra Ex n (nR, nL) checks				
67	All Terminals are Ex n certified (if required on certificate)	x		
68	Hermetically sealed and enclosed break devices are undamaged	x		
69	Restricted breathing properties satisfactory (conduct vacuum test)	x		
70	Test port, if fitted, is functional (type "nR" only)	x		
71	Breathing operation is satisfactory (type "nR" only)	x		
72	Motor fans have sufficient clearance to the enclosure and/or covers, cooling systems are	x		
73	The ventilation airflow is not impeded	x		
74	Insulation resistance (IR) of the motor windings is satisfactory	x		
75	Motor protection devices operate within the permitted tE or tA time limits.	x		
76	Variable voltage/frequency installation complies with documentation	x		
Extra Ex p checks				
77	Pressurization gas is correct type	x		
78	Actual pressure is within maximum and minimum settings for equipment	x		
79	Timers set as per certification documentation	x		
80	Alarms and trip functions operate correctly as per certification documentation	x		
81	Fault loop impedance (TN systems) or earthing resistance (IT systems) is satisfactory	x		
82	Automatic electrical protective devices operate within permitted limits	x		
83	Automatic electrical protective devices are set correctly	x		
84	Protective gas inlet temperature is below maximum specified	x		
85	Ducts, pipes and enclosures are in good condition	x		
86	Protective gas is substantially free from contaminants	x		
87	Protective gas pressure and/or flow is adequate	x		
88	Pressure and/or flow indicators, alarms and interlocks function correctly	x		
89	Conditions of spark and particle barriers of ducts for exhausting the gas in hazardous area are satisfactory	x		
90	Specific conditions of use (if applicable) are complied with			
Extra Ex i (Intrinsically Safe – IS) checks				
91	Equipment has adequate circuit identification for 'IS' Installation	x		
92	Cables are installed in accordance with the documentation	x		
93	Segregation is maintained between IS and non-IS Circuits	x		
94	Cable screens are isolated at one end (field side)	x		
95	Cable screens are earthed in accordance with the documentation	x		
96	Safety barrier units, relays and other energy limiting devices are of the approved type, installed in	x		
97	Equipment installed is the one specified in the documentation	x		
98	Ambient temperature range of the apparatus is correct for the installation	x		
99	Service temperature range of the apparatus is correct for the installation	x		
100	Installation is clearly labelled	x		
101	Printed circuit boards are clean and undamaged	x		
102	The maximum voltage Um of the associated apparatus is not exceeded	x		
103	Point-to-point connections are all correct	x		
104	Earth continuity is satisfactory (e.g. connections are tight, conductors are of sufficient cross-section)	x		
105	Earth connections maintain the integrity of the type of protection	x		
106	Intrinsically safe circuit earthing is satisfactory	x		
107	Insulation resistance is satisfactory	x		
108	Short-circuit protection of the power supply is in accordance with the documentation	x		

	BARRIER:	Manufacturer:		Model:		
		Authority:		Cert No:	Type:	

Remarks: Initial inspection should be detailed and carried out before equipment is brought into service as per IEC 60079-17	Please mark only one box as appropriate
	☐ Passed - Complete
	☐ Failed

Page 3/3	Performed by	☐ WITNESS ☐ REVIEW	☐ WITNESS ☐ REVIEW
Company			
Name			
Date			
Signature			

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